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Communist China's Advanced Weapons Program

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Submitted by:

DIRECTOR OF CENTRAL INTELLIGENCE

Concurred in by the:

UNITED STATES INTELLIGENCE BOARD

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The Central Intelligence Agency and the intelligence organizations of the Departments of State, Defense, the NSA, and AEC.

Concurring:

Mr. Sherman Kent, Acting CIA Member of USIB
Mr. Thomas L. Hughes, Director of Intelligence and Research, Department of State
Lieutenant General Joseph F. Carroll, USAF, Director, Defense Intelligence Agency
Lieutenant General Marshall S. Carter, USA, Director of the National Security Agency
Mr. Howard C. Brown, Jr., Assistant General Manager, Atomic Energy Commission

Abstaining:

Mr. William C. Sullivan, Assistant Director, Federal Bureau of Investigation, the subject being outside of his jurisdiction.

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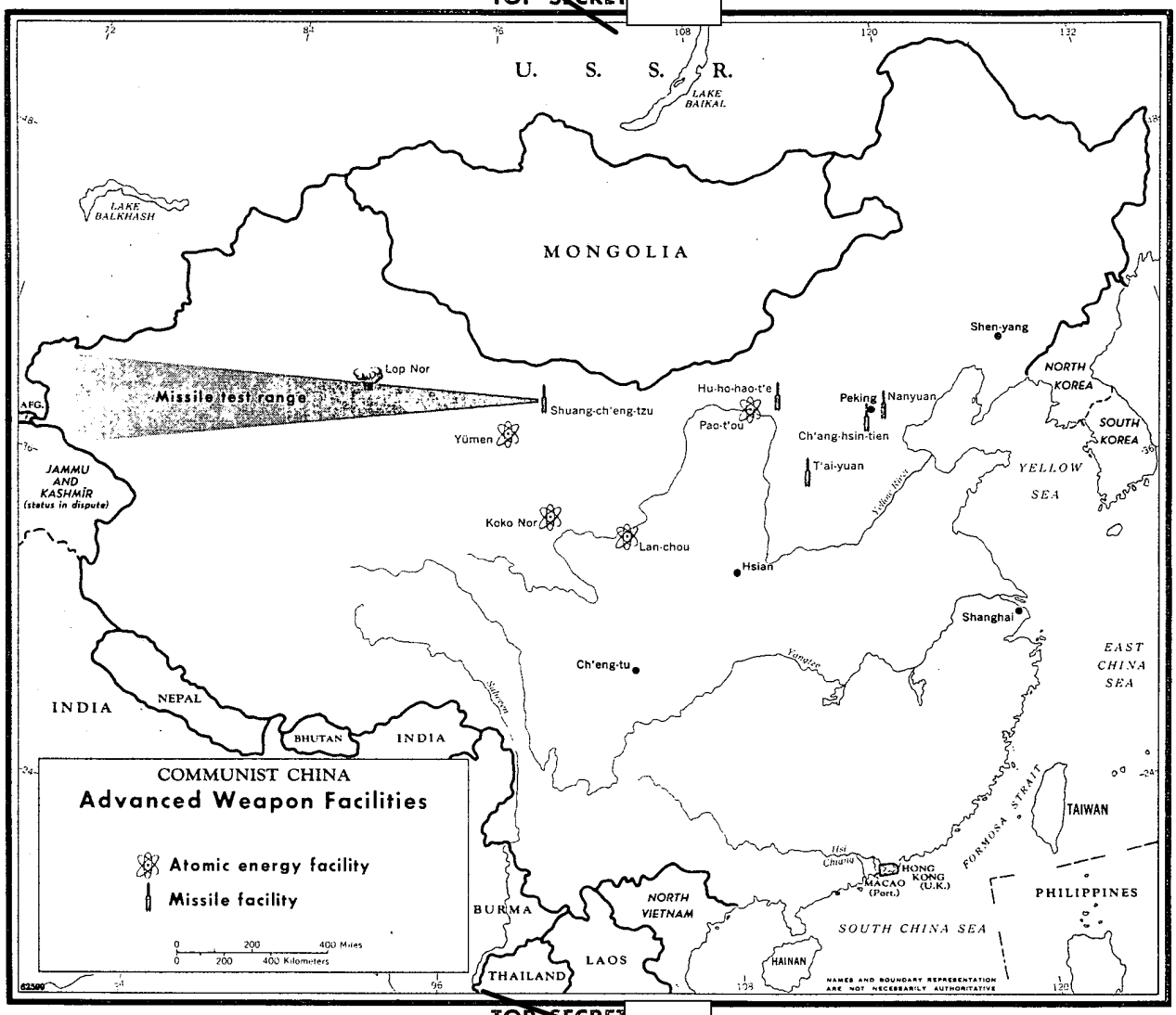

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COMMUNIST CHINA'S ADVANCED WEAPONS PROGRAM

SUMMARY AND CONCLUSIONS

A. We see no slackening in Peking's determination to become a modern nuclear power. Communist China recently conducted its third nuclear test at Lop Nor, and activity at the missile test range has increased. Construction is moving ahead on a number of major projects related to the production of nuclear materials, missiles, jet bombers, and possibly submarines. Much of this activity reflects a determination to go ahead with programs initiated in the mid- and late-1950s with extensive Soviet assistance, despite the disruptions caused by the withdrawal of Soviet aid in 1960 and the general chaos in China resulting from the Great Leap Forward.

B. Since the Chinese program is still in its early stages and still working from the base provided by pre-1960 Soviet assistance, we lack reliable indications of China's independent ability to progress in the field of modern weapons. In addition to a host of purely technical problems, the Chinese face the grim reality of China's poverty—a condition that will only be aggravated by large expenditures for arms. While China's economic and technical resources are sufficient for progress toward relatively narrow objectives, the Chinese certainly will not be able over the next few years to develop and produce all the weapon systems in which they have shown an interest.

C. The overall judgments contained in this estimate assume a reasonably rational approach by the Chinese leadership. It is possible that the leadership will seriously misjudge the country's capabilities and will attempt too much, too fast. Indeed, amidst the current political turmoil in Peking, there are signs of a reemergence of a "leap forward" mentality. In addition, there are many gaps in our

information and there are aspects of the Chinese program which we do not fully understand. All of this cautions against a too firm view of the regime's military thinking and the probable nature of its force goals.

D. We believe that in their advanced weapons program the Chinese are placing primary emphasis on the development of offensive and defensive weapon systems appropriate to a regional force. We believe the Chinese would find it necessary and desirable to solve what for them would be the difficult and costly scientific, technical, and economic problems of building this kind of a force before moving on to the much greater problems of developing intercontinental capabilities. We believe that it would be several years or more before this regional force could be fully operational.

Although we note that it was influenced by political and propaganda considerations, the test indicates that the Chinese have a lively interest in thermonuclear development.

F. The second and third devices were almost certainly air-dropped, indicating that the Chinese can now produce nuclear weapons deliverable by their very small force of medium bombers.

It would take somewhat less time to develop this warhead in a bomb configuration, which could be delivered by China's 270 or so jet light bombers.

G. The fissionable material in all three Chinese tests was U-235. Though China's output of fissionable material is limited, we believe that it is sufficient to support a moderate test program and perhaps to permit stockpiling of a few weapons. The Chinese are building a fairly large plutonium production reactor at Yümen, which, if nothing goes seriously wrong, will probably begin operation in 1967. In order to balance this plutonium output, the Chinese will probably seek to enlarge their facilities for U-235 production.

H. We believe the Chinese are working on a medium-range ballistic missile (MRBM), but we do not know how far the program has advanced. The Chinese could have a few available for deployment as early as 1967 or 1968. It is quite another matter, however, to progress to series production of a missile system. In addition to the problems that might arise with the missile program itself, there is also the chance of difficulties developing in the nuclear warhead program. Therefore, we believe that it will be at least three or four years before a major deployment program could begin.

I. We believe that the Chinese plan to produce a jet medium bomber as part of their initial nuclear strike force, probably a copy of the TU-16 (BADGER). Production could begin as early as 1968. The Chinese have constructed one G-class submarine, but we have virtually no information concerning the development of a suitable missile. If they are developing a missile submarine system, it will be at least 1970 before even two or three such craft could be operational.

J. If we are wrong on Peking's priorities with respect to an intercontinental capability, the Chinese might develop an intercontinental ballistic missile (ICBM) by 1973-1975. This would require that they already have their best scientific talent at work on this program (and we have no evidence that they have), are prepared to persevere in an all-out effort, and are willing to make a costly effort on a weapons system likely to have major problems of reliability, accuracy and vulnerability. Such an achievement would require notable successes in a number of highly complex and costly endeavors, and this projection gives the Chinese virtually all the benefit of the doubt as to their scientific and industrial potential. Furthermore, an all-out effort on an ICBM would considerably retard work on other delivery systems.

K. A missile launching submarine is another route the Chinese might take to achieve a strike capability against the US, although we think this a less likely choice than the ICBM. If the Chinese do go this route, we believe they would probably choose a new nuclear-powered system rather than a long-range diesel submarine. A nuclear-powered system would divert materials and talent from the nuclear weapons program, be more costly and complicated than an ICBM, and take longer to develop. There is little chance that the Chinese envisage a long-range bomber as a means of threatening the US.

L. We believe that the Chinese have assigned a high priority to an effort to produce surface-to-air missiles (SAMs), and that series production could begin in 1967 or 1968. Given their limited resources, we think that the initial Chinese aim will be to defend a few key targets and attempt a scattered defense against overflights. While we have no firm information on Chinese production of air-to-air missiles or cruise missiles, we consider that such production is within Chinese capabilities.

M.

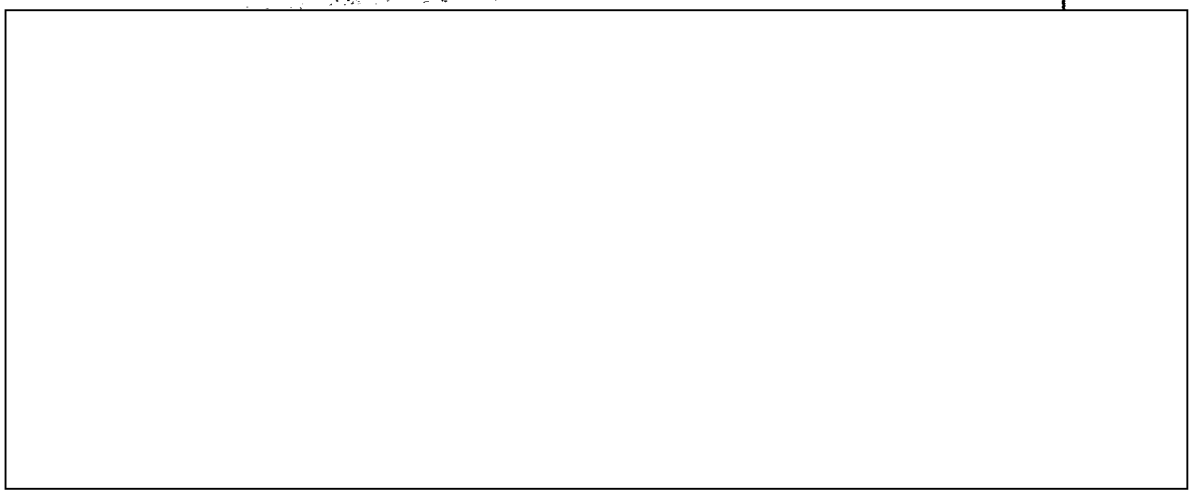
DISCUSSION

I. NUCLEAR PROGRAM

1. *China's First Nuclear Tests.* [redacted]

3. Until our analysis is further advanced, we cannot assess with confidence the significance of the third test with respect to the level of Chinese technology. [redacted] Moreover, photography of the test site before the explosion indicates that the Chinese may have been expecting a larger yield than was obtained. The third device, like the second, was almost certainly dropped from a medium bomber. It was probably detonated at an altitude of 4,000 to 8,000 feet.

4. [redacted]



6. *Source of the U-235.* We believe that the U-235 used in all three tests was produced by the Chinese in their gaseous diffusion plant at Lanchou with final enrichment taking place in a still unidentified electromagnetic separation plant. In theory, the Lanchou plant could, by itself, produce uranium of sufficient enrichment to make a nuclear device. But because it appears too small to hold a complete gaseous diffusion cascade using normal size stages it would have been necessary for the Chinese to crowd in a large number of small stages. It is highly unlikely that the Chinese had the technical capability to do this during the years that Lanchou was being built. Fully enriched U-235 might also be produced by using a batch process in which the plant is operated successively in low enrichment and high enrichment phases.

7. Theoretically, enrichment of U-235 could be accomplished by a gas centrifuge process, but we have no evidence of Chinese capability in this field. There is, however, evidence of considerable Chinese competence in electromagnetic isotope separation. A combination of the gaseous diffusion process for partial enrichment and the electromagnetic process for final "topping off" could have produced material like that used in the Chinese devices.

8. While we are fairly confident that the enrichment by gaseous diffusion took place at Lanchou, we are much less certain of the location of the electromagnetic separation plant. It might also be at Lanchou, which has buildings, power, and a physical layout that could accommodate both facilities. Or the electromagnetic "topping" installation may be at some other location which we have not identified, although we think this less likely.

9. *Capacity for Producing Nuclear Material.* At present, we believe that China's fissionable material production consists only of Lanchou's output of U-235 plus possibly very small amounts of plutonium from what we believe

to be an experimental reactor at Yümen. U-235 output can only be estimated within the limits of certain minimum and maximum ranges. [redacted]

A maximum capacity—based on assumptions that the Lanchou nuclear complex is entirely devoted to the gaseous diffusion process and that its entire output can all be "topped" in an electromagnetic plant which exists elsewhere—would be about one kilogram per day. Electromagnetic facilities to process one kilogram per day would have to be large. We have not identified any such facilities at Lanchou or elsewhere in China. We believe it more likely therefore that the production of enriched U-235 is less than one kilogram, being limited by the available capacity of electromagnetic facilities. If these facilities are contained within the Lanchou complex, plant size, electric power input, cooling capacity, and other factors would appear to place the output of enriched U-235 at about 0.2 to 0.6 kilograms per day.

10. China's primary plutonium production center has been under construction since at least 1958 near Yümen in a remote area of Kansu Province. This complex includes a large plutonium production reactor, probably a plutonium chemical separation plant, and a third facility which we believe contains a small experimental reactor and possibly a pilot chemical separation plant.

11. This last facility, which may have begun operation about mid-1964, is probably for investigating the problems of operating the larger plutonium production reactor. Judging from its size, it probably has a designed power level of between 50 and 150 megawatts (thermal) and, as a by-product of experimental operations, could produce plutonium at a rate ranging from a few to 30 kilograms per year. It is unlikely that the upper limit would be reached so long as the small reactor was primarily engaged in experimental work. We believe that the large reactor, which appears to be in the later stages of construction, is a graphite-moderated, water-cooled plutonium production reactor. The reactor design appears to show definite Soviet influence, and the outward appearance of the reactor building is very similar to one of the Soviet reactors at Tomsk. Its size and the estimated capacity of the cooling towers indicate that the large reactor is designed to operate at about 1,000 megawatts (thermal). The status of construction apparent in early 1966 photography leads us to believe that, if the Chinese encounter no great difficulties, it will probably begin operation in the first half of 1967. We calculate that this reactor will have a capacity to produce about 300 kilograms of plutonium a year. However, considering the problems involved in starting and operating a new reactor, it is likely to be three years or so after operation begins before production reaches this level. During the first year of operation, production of plutonium could be on the order of 100 kilograms.

12. We have identified no facilities in China for producing lithium highly enriched in the lithium-6 isotope or for producing heavy water from which

deuterium is obtained. Neither of these processes require distinctive facilities and such facilities might escape detection, especially if production were on a relatively small scale.

13. *Other Nuclear Facilities.* We have identified a large complex under construction near Koko Nor in Tsinghai Province which we believe is a nuclear weapons research, development, and production facility. Construction has obviously had a high priority, elaborate security precautions have been taken, and some of the installations in the complex resemble Soviet nuclear development and production sites. From outward appearances the complex is nearly completed. The complex appears to be capable of handling more fissionable material than can be produced in Chinese facilities known to be in operation or under construction.

14. We no longer believe that the nuclear complex at Pao-t'ou contains a plutonium production reactor. We now think it is a facility for research and development on metallurgical and chemical operations involved in handling and fabricating nuclear materials.

15. *Future Nuclear Weapons Development.* From the foregoing it is apparent that we do not have a firm basis for estimating the level of Chinese technology, how large a program can be supported or what types of weapons have the highest priority.

That the second and third devices were almost certainly airdropped indicates that the Chinese can produce nuclear weapons deliverable by their very small number of medium bombers, and they may now be stockpiling a few weapons—especially if the production rate of fissionable materials is in the middle or upper part of the range discussed above.

16.

fashion a few missile warheads which, with the re-entry vehicle, would weigh some 3,000 to 3,300 pounds. Thus, if testing begins soon, they could have a few such warheads by about 1968. It would probably be another year before the Chinese could begin turning out warheads in larger numbers. This warhead in a bomb configuration with about the same diameter could be ready somewhat earlier and would weigh some 3,000 to 3,500 pounds. Such a bomb could be delivered by the IL-28 jet light bomber, of which China has about 270.

17.

18.

II. MISSILE AND AIRCRAFT SYSTEMS

19. We are still unable to assess with much confidence the nature, pace, or stage of development of China's missile and aircraft delivery systems program. Although the program was no doubt dealt a severe blow with the withdrawal of Soviet technicians in mid-1960, the Chinese continued to work hard in the missile field, even in the period immediately following the Soviet departure. We have good evidence of programs in progress on medium-range ballistic missiles (MRBMs) and surface-to-air missiles (SAMs). There is also some evidence of work on air-to-air missiles (AAMs), and they are now finishing a factory probably designed to produce medium jet bombers. During the period when they were getting Soviet assistance, the Chinese were apparently also interested in submarine-launched missiles, coastal defense missiles and guided missile patrol boats, and tactical land-based ballistic missiles, but we have little or no recent evidence of active programs in these fields.

20. *Medium-Range Ballistic Missiles.* The Chinese carry out missile flight testing at the Shuang-ch'eng-tzu Missile Test Range (SCTMTR). Construction at the rangehead started in the late 1950s with Soviet assistance There is evidence of further firings in 1962 and 1963, but we believe firings were sporadic and their number limited. Activity at the range appears to have been accelerated since 1964. Intercepted downrange radio communications appear to be centered in the 300 and 600 n.m. areas. However, we have not yet identified any downrange facilities.

21. Overhead photography gives us some additional information; pictures of what was probably an MRBM were taken Finally, we cannot establish with any confidence when testing began to involve a Chinese-fabricated MRBM rather than missiles provided by the USSR before mid-1960.

22. The most recent development at the test range is work on a new launch complex. Started in the fall of 1965 and still in an early construction stage, this facility is unlikely to be completed before mid-1967. It appears designed to handle a different, larger, and more complex system than the one now being tested. Construction is not far enough along for us to assess fully the significance of this facility. All we can say at this time is that it may be the first sign of an important new development in a program relating to missiles or space, and may prove to have an important bearing on some of the judgments made in this estimate.

23. China's ballistic missile research and development effort and suspect production facilities are located in the Peking suburbs. Work on the engine R and D facilities at Ch'ang-hsin-tien may have begun in 1958; by 1959 a number of buildings in the area were complete. Static test stands were built later and testing of some kind of missile engines began by September 1962; however, the third major test stand was not structurally complete until well into 1963 and may not have been fully instrumented for operational use until 1964. Judging from the layout and the size of the rocket engine test stands, this complex appears suitable for developing engines for ballistic missiles of MRBM or larger size.

24. Facilities apparently suitable for missile airframe production are located 12 miles to the east, at Nanyuan on the site of an airframe repair and maintenance plant. Between 1959 and late 1963 its floorspace was expanded from 864,000 to 2,385,000 square feet. During the later portion of the period, a tower 110 feet high and a building with a bay section 120 feet high were constructed; they would appear suitable for hydrostatic and dynamic testing, and possibly for vertical checkout of a complete missile. We have no information as to the nature of equipment installed in this plant, and we have no firm evidence that it is to be a ballistic missile manufacturing facility.

25. The only firm conclusion that we can draw from the above evidence is that the Chinese have given a very high priority to their ballistic missile effort. It is noteworthy that testing activity at the range and large scale construction efforts continued during the confused and depressed period of the early 1960s. But beyond this, we confront serious difficulties in assessing the current status of the program. Broadly speaking, the available data permits three interpretations.

26. Given the apparent priority, the Chinese could be well along in the development of an MRBM. It is possible that the Chinese were able to make static tests of components of their own missile in late 1962 and to begin test firing at the range in late 1963. If the accelerated pace of range activity since 1964 is evidence of a successful test program, the Chinese could have a few MRBMs ready for deployment in 1967 or 1968.

27. Although somewhat less likely, the rate of progress could have been slower. While some buildings were complete at Ch'ang-hsin-tien in 1959, we do not

know how much activity was going on inside at this early date. The known difficulties in the industrial sector in 1960-1963, and in other high-priority military programs, raise questions as to whether the Chinese could have fabricated all the components for their own test missiles as early as 1962 or 1963. It is not certain that they would have chanced testing at the range before full systems static testing could take place at Ch'ang-hsin-tien. On this basis full systems flight tests of a Chinese-fabricated missile might not have begun before late 1964 or 1965 at the earliest. If this were so, the missile now under development probably would not be ready for some time, perhaps not until 1970.

28. Finally, there is an outside chance that the testing activity at the range has not involved a missile system planned for deployment. Rather, this activity may have concentrated on the study and exploration of the problems of missilery, mainly using equipment supplied earlier by the Soviets with the gradual introduction of more and more Chinese components. The Chinese may have been using this experience to design and fabricate a missile adapted to their own specifications and requirements.

29. The successful development of an MRBM-sized booster would provide the main component necessary for putting a small earth satellite into orbit. There is a strong likelihood that the Chinese, for reasons of prestige, will divert hardware from their weapons program as early as they can in order to put something in space.

30. *Surface-to-Air Missiles.* Before mid-1960, the Soviets provided the Chinese with about ten sets of SA-2 surface-to-air missile equipment which, if standard Soviet practice were followed, would have included over 200 missiles. We believe the Soviets also gave the Chinese a start on the technological base for future domestic development. We have no evidence whether the Soviets have or have not supplied any additional SAMs or related equipment since then; indeed, the lack of expansion of the number of occupied sites argues against this. While we have observed over 30 prepared sites, only about half a dozen of the sites are believed to be occupied with equipment at any one time.

31. SAM pad modification has been carried out at one of the two R and D/training sites at SCTMTR and the instrumentation has been extended. We believe that one or more industrial facilities at T'aiyuan may be involved in the program (especially production of solid propellants); a facility under construction at Hu-ho-hao-t'e may also be a solid propellant plant.

32. We have no evidence that the Chinese are producing and deploying SAMs. This could be due to lack of sufficient priority. However, in view of the serious deficiencies in China's air defense, we believe that the Chinese are working hard on a SAM program and the slow progress to date probably reflects trouble in some phase of design or production. Even so, the Chinese may be producing a few SA-2 type missiles, and we consider it reasonable to expect series production of a complete SAM system within the next 12-18 months.

33. *Air-to-Air Missiles.* We believe that the Chinese have at least a limited number of heat-seeking air-to-air missiles. It is likely that the 1962 Soviet delivery of MIG-21s to China included at least a few such missiles (ATOLL, AA-2). The Chinese recovered a similar US missile in late 1958. The SCTMTR airfield has facilities believed to be air-to-air associated and these were expanded during 1965. Fighter activity involving that airfield since 1964 possibly involved AAM testing and/or training. While we have no firm information regarding Chinese production and deployment of AAMs, we consider that production of such a weapon is within Chinese capabilities.

34. *Missile Submarine.* Between mid-1962 and late 1964, the Chinese constructed a submarine identical in outward appearance to a Soviet G-class submarine. We believe that some of the components were supplied by the USSR. We have no firm indication of any further production of this class of submarine.

35. The G-class submarine is designed to launch SS-N-4 350 n.m. ballistic missiles while surfaced, but we do not know whether the Soviets provided such missiles. We have no evidence of an active Chinese program to develop a missile for this submarine, although there is tenuous evidence suggesting that Soviet naval missile experts were in China in 1959 and 1960 and some of the unidentified activity at the range may involve the testing of such a missile. If an active program is underway the Chinese are probably capable of developing a suitable missile with a nuclear warhead by around 1970.

36. *Short-Range Ballistic Missiles (SRBMs).* We have no direct evidence of a Chinese program to develop tactical land-based ballistic missiles. We believe that the Chinese received some Soviet 150-mile range vehicular mounted missiles prior to mid-1960 and that they carried out testing or training exercises with them during 1960. Although recent construction activity at one of the launching sites at SCTMTR could indicate an interest in developing an SRBM, we do not have the evidence to make such a connection.

37. *Air-to-Surface Missiles (ASMs).* We believe the Chinese have no air-to-surface missile capability at this time. Although some of the original facilities at SCTMTR airfield suggest that an ASM program was at one time contemplated, no more recent indications of such a program have been identified. The Chinese probably could, if they chose, produce a Kennel-type ASM system (a cruise missile with a range of 50 n.m. and designed to carry a high explosive warhead) without much difficulty.

38. *Coastal Defense Missiles and Guided Missile Patrol Boats.* Soviet assistance in the late 1950s provided the Chinese with some cruise missiles which have a range of 35 n.m. or so and carry a high explosive warhead. Three sites have been identified; one is a training and development center, one an unoccupied coastal site, and one a recently constructed coastal site. We feel that the Chinese could produce a cruise missile without much difficulty and their obvious interest in coastal defense makes such a program likely.

39. At least one Soviet OSA-class and one KOMAR-class motor boats have been sighted in China since 1963, but we have no evidence of Chinese production of either type. In the Soviet Union, these craft carry SS-N-2 aerodynamic missiles with a high explosive warhead and with a range of 15-20 n.m. We have no evidence of the development or production of a suitable missile, but we believe that both are within Chinese capabilities and the Chinese have small craft which they could adapt as launch platforms.

40. *Aircraft Nuclear Delivery Systems.* After a hiatus of several years caused by the Soviet withdrawal, the Chinese have resumed production of military jet aircraft. They are producing MIG-19 (FARMER) jet fighters at Shenyang and appear ready to produce either MIG-19s or MIG-21s (FISHBED) at Ch'engtu. While jet fighters can be used to deliver small tactical nuclear weapons, we doubt that the Chinese intend to utilize their fighters for this purpose during the next few years.

41. The Chinese bomber force consists of 12 or so obsolete TU-4 (BULL) piston medium bombers, two TU-16 (BADGER) jet medium bombers, and about 270 IL-28 (BEAGLE) jet light bombers, all provided by the Soviets. The resumption of construction at the Yenliang plant near Hsian, which we believe was originally planned for the production of the TU-16, probably indicates that the Chinese intend to produce this aircraft. At the present rate of construction, the facility should be completed in late 1966 or early 1967. Production could begin in 1968; no more than a few could be deployed by 1969 or 1970. While Chinese plans regarding a nuclear capability for this aircraft are unknown, it could carry a relatively large nuclear device to a distance of 1,650 n.m., providing an interim weapon system pending further missile development.

III. CONSIDERATIONS FOR THE FUTURE

42. *General.* The Chinese seem to be pressing ahead on an ambitiously wide front. They are not only working on various aspects of missilery and nuclear weapons, but have in hand vigorous aircraft, naval and ground forces programs as well. While China's economic and technical resources are sufficient for progress toward relatively narrow objectives, the Chinese almost certainly will not be able over the next few years to develop and produce all the weapon systems in which they have shown interest and on which they have done some work. They are no doubt encountering a host of technical problems, not only in the more esoteric aspects of theory and technology but also in the ordinary industrial processes that are required to supply large quantities of basic materials. These unsolved problems probably account for much of the uneven progress apparently present in the Chinese military program.

43. The Chinese have gone to considerable effort to import from the West some materials and equipment that would be useful in their weapon programs. Moreover, they will benefit considerably from the pioneering work done

by others, much of which is available in open literature. Nevertheless, as the Chinese forge ahead on their own they will encounter more and more difficulties, especially since the Chinese program is a forced-draft effort resting on a very limited scientific, technological, and industrial base. But it is difficult to judge how much our basic calculations of the time required to develop and produce various kinds of military hardware should be adjusted to take account of these weaknesses. In any case, the Chinese are likely to resort to some expedients and makeshift adaptations for which US, Soviet, British, and French experience is no precedent, and which will accordingly be hard for us to detect or predict.

44. Never before has a nation as industrially backward and so near the margin of bare subsistence attempted such an ambitious advanced weapons program, and the Chinese leaders, though they have clearly demonstrated their willingness to subordinate civilian economic needs to military programs, cannot ignore the grim race between food production and population growth. As the Chinese reach the stage where they can begin production of weapon systems in large quantity and as they strive to make further advances, they will discover what far wealthier and more highly developed countries have learned: that progress in modern weaponry almost invariably is on a steeply rising cost curve and requires ever broader scientific and industrial bases. In short, the intensifying competition for resources between the military and civilian sectors of the economy and among various costly weapon systems will confront Peking with progressively more difficult choices.

45. What the direction of choice will be is still obscure at this early stage of the Chinese program. We know that the top Chinese leaders are eager to provide China with the trappings of a great military power and are determined to show the world that they can succeed despite Soviet perfidy, but this does not necessarily mean that they will opt for spectacular achievements of dubious military value at the expense of other military programs. Similarly, the Chinese leaders must take into account that the more resources they commit to obtaining early results, the less there will be available for engendering the scientific, industrial, and general economic growth required to support a modern military establishment over the long haul.

46. Another factor that will affect the balance struck between the short and the long term is how the Chinese view a strong Asiatic regional force as against an intercontinental strike capability against the US. The Chinese leaders almost certainly aspire eventually to a capability to threaten the continental US with nuclear weapons, but whether or not they will rush ahead with a costly effort to achieve such a capability at the earliest time possible is another matter. They might see the advantages gained in terms of prestige and psychological and political impact as outweighing the disadvantages of paying a very heavy price for a weapons system that would have problems of reliability and accuracy and

be vulnerable to the massive and far more advanced defensive and offensive potential of the US. On the other hand, the Chinese might be more concerned with weakening the US military presence in Asia and establishing Chinese preeminence in the area.

47. All of these factors will be weighed by men who are influenced to an extraordinary degree by political and ideological considerations and who do not have at their command staffs of scientific, military, and economic planners with experience and expertise in the intricacies of designing a balanced advanced weapons force. Thus they might not—indeed, probably would not—make the same decisions as would a US military planner under the same set of circumstances.

48. It is possible that the leadership will seriously misjudge the country's capabilities and will attempt too much, too fast. Indeed, amidst the current political turmoil in Peking, there are signs of a reemergence of a "leap forward" mentality. By undertaking nearly simultaneous programs to develop a number of defensive systems, several systems for strategic attack in the area, and the beginnings of an intercontinental capability, the regime might so stretch its resources as to endanger all progress.

49. We cannot rule out the possibility of some such overambitious effort, but we think it more likely that for the next few years, at least, the Chinese will place their main effort on the development of certain weapon systems which are appropriate to the defense of the mainland and to military operations in the Asian area. We believe they are working toward such a regional nuclear force and that it will consist inititally of MRBMs, medium bombers, and possibly a few missile-launching submarines.

50. Considering the location of likely targets and taking into account the desirability of having flexibility in choosing areas for deployment, it seems likely that the Chinese would seek a missile with a range of at least 1,000 miles. Furthermore, the longer the range of the missile the more leeway the Chinese would have in adjusting to any difficulties they might encounter in developing a light, compact warhead, since it is possible, within limits, to trade range for warhead weight and size. As stated in paragraph 26, the Chinese could have a few MRBMs as early as 1967 or 1968. But we doubt that the Chinese intend to attain only a token deployment for psychological effect of a few such MRBMs. Their investment in missile and nuclear facilities indicates an ambitious weapons program. We believe this program includes the eventual deployment of at least enough MRBMs to cover major military bases and political targets in the Asian area. The number of launchers, sites, and missiles required would depend not only on the number of targets but also on such factors as the range, reliability, and accuracy of the system, and warhead yields. We lack the data to make any useful projection on the possible numbers involved but they certainly would be of such an order as to require production line facilities and the attendant skilled manpower.

51. The Chinese would probably encounter major difficulties in moving from the fabrication of developmental missiles to a production and deployment program of this magnitude. Before doing so, and in view of the economic costs and the technical considerations, they would wish to be certain that the missile was fully proven and reliable. In addition to problems which may continue to arise with the missile itself, there may also be delays and difficulties in the nuclear warhead program. We believe the net result of these various factors is likely to be that the Chinese will not deploy MRBMs with nuclear warheads in large numbers for at least another three to four years.

52. A Chinese medium bomber would almost certainly be a copy of the TU-16. Though obsolescent, such a bomber would extend the range of China's nuclear strike capability and have useful non-nuclear applications as well. We believe that the Chinese are unlikely to go to the expense of developing an intermediate-range ballistic missile (1,500-3,000 n.m.), particularly if they are successful with a 1,000-mile MRBM and if they build a medium bomber force, since such a weapon would not cover enough new targets to make the effort worthwhile.

53. If the Chinese do attempt to develop an early capability with a missile carrying submarine, they will almost certainly use the G-class as the platform. This submarine has, at best, only a marginal capability for threatening the west coast of the US, and thus the Chinese probably would not develop such a system as a long-range strike capability but, rather, as part of their Asiatic regional force. It would be at least 1970 before even two or three such craft could be operational.

54. If deployment of SAMs begins in the next year or so, it is likely to be based largely on the Soviet SA-2 system; the introduction of substantial improvements or modifications would probably require considerably more time. In any case, large-scale deployment of a SAM system is a very costly undertaking, and, given their limited resources, the most the Chinese can probably do in the next few years is defend a few key targets and attempt a scattered defense against overflights of their territory.

55.

56. *The Longer Term.* We believe that the Chinese are unlikely to make an all-out effort to develop an ICBM until they are further down the road

toward developing a regional nuclear force. If we are wrong, and if the Chinese have already put their best scientific talent to work on an ICBM, China's first such missiles might be ready for deployment by 1973-1975. Such an achievement would require notable successes in a number of highly complex and costly endeavors, and this projection gives the Chinese virtually all the benefit of doubt as to their scientific and industrial potential. Furthermore, an all-out effort on an ICBM would considerably retard work on other delivery systems.

57. A missile-launching submarine is another route the Chinese might take to achieve a strike capability against the US. Although it is possible the Chinese might decide on a long-range diesel submarine, we think it more likely that they would try for a nuclear-powered system. Though a nuclear submarine system would have some advantages with respect to survivability, it would divert materials and talent from the nuclear weapons program, be a more costly and complicated program than an ICBM, and take longer to develop. We believe it is highly unlikely that the Chinese would be capable of undertaking simultaneously high priority programs for both an ICBM and a nuclear submarine capability. Of the two systems, we believe the Chinese would choose the ICBM for their first intercontinental strike capability.

58. We believe there is little chance that the Chinese envisage developing a long-range bomber as a means of threatening the US. Such a weapon system would be extremely costly and vulnerable to US defenses.

[redacted]

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